



Pharmacogenetics (PGx)

For Psychiatrists

Recommended by Guidelines, pharmacotherapeutic genotyping is one of multiple pieces of information that psychiatrists should consider when making their therapeutic choice for each patient. Preemptive use of testing could significantly optimise drug outcomes and be particularly useful for patients undergoing multiple treatments or experiencing poor drug responses. See below a selection of pharmacogenetic (PGx) tests that may be useful for your practice. *To view our full PGx offering, scan the QR code below.*

Clinical Labs' Comprehensive PGx Gene Panel

Clinical Labs' **Comprehensive PGx Gene Panel** includes a family of enzymes that catalyse the metabolism of many drugs and xenobiotics, particularly in areas such as mental health, cardiology, pain management, and oncology - providing clinicians with comprehensive information to help determine the most appropriate treatment for each individual. With our Comprehensive PGx Gene Panel, you will receive a comprehensive report that will indicate the genotype and the predicted phenotypes, such as the metaboliser status along with potential drug-gene interaction and Guidelines' recommendations. Please specify any medications of interest if you want them to be included in the report. The genes can be ordered separately or together - for individual genes, only genotyping/phenotyping will be reported. *See reverse for a list of genes tested and examples of drugs metabolised.*

Genes included in our Comprehensive PGx Panel
CYP2D6
CYP2C19
CYP2C9
CYP3A4
CYP3A5
CYP1A2
VKORC1
SLCO1B1

Anti-Depressants Predictor & Anti-Psychotics Predictor

CYP2D6 is the primary enzyme responsible for the metabolism of many commonly-used medications especially in mental health. CYP2D6 alleles have been extensively studied in multiple geographically, racially, and ethnically diverse groups, and significant differences in allele frequencies have been observed. When considering antidepressant therapy such as tricyclic anti-depressants (TCAs), analysis of the CYP2C19 and CYP2D6 genes is often considered (Attia et al., 2014 and Hicks et al., 2017).

Anti-Depressants Predictor
CYP2D6
CYP2C19

Anti-Psychotics Predictor
CYP2D6

Ordering Pharmacogenetic Testing at Clinical Labs

- When to order:** At the time of drug prescribing and dispensing for patients with genotypes that require action, such as dose reductions.
- What to put on the request form:** Fill out our routine Clinical Labs request form, list the gene required or group of genes and prescribed medications if available.
- Turnaround time:** Results within 7-10 business days from the sample receipt date.
- Specimen details:** 2x EDTA blood samples.
- Test cost:** Genes can be ordered separately or together. Apart from the *TPMT* gene, an out-of-pocket fee applies. For more information and pricing, scan QR or visit clinicallabs.com.au/pharmacogenetictesting.



Comprehensive Pharmacogenetic (PGx) Testing Gene Panel

Examples of drugs metabolised and genes tested

Medication	Gene(s)	Medication	Gene(s)	Medication	Gene(s)
Cardiology		Mental Health		Neurology	
Carvedilol	CYP2D6	Anti-Depressants (TCAs)		Anti-Dementia	
Clopidogrel	CYP2C19	Amitriptyline	CYP2D6, CYP2C19	Donepezil	CYP2D6
Flecainide	CYP2D6	Clomipramine	CYP2D6, CYP2C19	Galantamine	CYP2D6
Metoprolol	CYP2D6	Desipramine	CYP2D6, CYP2C19	Anti-Epileptics	
Warfarin	VKORC1, CYP2C9	Dosulepin	CYP2D6, CYP2C19	Phenytoin/ Fosphenytoin	CYP2C9
Lipid Lowering Medication		Doxepin	CYP2D6, CYP2C19	Multiple Sclerosis	
Atorvastatin	SLCO1B1, CYP3A4	Imipramine	CYP2D6, CYP2C19	Siponimod	CYP2C9
Fluvastatin	SLCO1B1, CYP2C9	Nortriptyline	CYP2D6	Oncology	
Lovastatin	SLCO1B1	Trimipramine	CYP2C19	Gefitinib	CYP2D6
Pitavastatin	SLCO1B1	Anti-Depressants (Other)		Tamoxifen	CYP2D6
Pravastatin	SLCO1B1	Vortioxetine	CYP2D6	Organ Transplant	
Rosuvastatin	SLCO1B1	Anti-Psychotics		Tacrolimus	CYP3A5
Simvastatin	SLCO1B1	Aripiprazole	CYP2D6	Pain Management	
Gastroenterology		Brexpiprazole	CYP2D6	NSAIDs	
Anti-Emetic		Chlorpromazine	CYP2D6	Celecoxib	CYP2C9
Metoclopramide	CYP2D6	Haloperidol	CYP2D6	Flurbiprofen	CYP2C9
Ondansetron	CYP2D6	Olanzapine	CYP1A2	Ibuprofen	CYP2C9
Tropisetron	CYP2D6	Quetiapine	CYP3A4	Piroxicam	CYP2C9
Proton Pump Inhibitors		Risperidone	CYP2D6	Meloxicam	CYP2C9
Esomeprazole	CYP2C19	Zuclopentixol	CYP2D6	Opioids	
Lansoprazole	CYP2C19	Benzodiazepines (Anxiolytics)		Codeine (prodrug)	CYP2D6
Omeprazole (Losec)	CYP2C19	Clobazam	CYP2C19	Dihydrocodeine	CYP2D6
Pantoprazole	CYP2C19	Diazepam (Valium)	CYP2C19	Tramadol	CYP2D6
Rabeprazole	CYP2C19			Urology	
Mental Health				Darifenacin	CYP2D6
Anti-ADHD				Mirabegron	CYP2D6
Atomoxetine	CYP2D6			Tamsulosin	CYP2D6
Dextroamphetamine	CYP2D6			Tolterodine	CYP2D6
Lisdexamfetamine	CYP2D6			Anti-Fungal	
Anti-Depressants (MOAs)				Voriconazol	CYP2C19
Moclobemide	CYP2C19				
Anti-Depressants (SNRIs)					
Venlafaxine	CYP2D6				
Anti-Depressants (SSRIs)					
Citalopram	CYP2C19				
Escitalopram	CYP2C19				
Fluoxetine (Prozac)	CYP2D6				
Fluvoxamine	CYP2D6				
Paroxetine	CYP2D6				
Sertraline (Zoloft)	CYP2C19				

Please note that this is a guide for gene selection. Some specific medications may not be reported if they are listed under a drug class that is metabolised by the relevant gene.

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